ABSTRACT

A method and apparatus for treating an atherosclerotic target region of a coronary vessel in a patient are disclosed. The method includes delivering to the patient, a photoatherolytic compound, to cause accumulation of the compound in the target region, accessing the target region intraluminally with a guidewire, and advancing over the guidewire, a catheter having (i) a proximal main-body sleeve, (ii) a flexible, non-inflatable, translucent distal-end sleeve joined to the main-body sleeve at a catheter juncture, and (iii) an inner lumen extending through the two sleeves, said advancing being effective to position the catheter's distal-end sleeve within the target region. The guidewire is then removed and replaced by a fiber-optic bundle having a light-diffusing tip, until said tip is positioned adjacent the catheter juncture. After injecting a light-transmissive fluid through the catheter into the catheter's distal-end sleeve, the target vessel region is irradiated by passing a laser light beam through the fiber optic bundle.